LISTING OF THE CLAIMS

Claims 1-19: (canceled).

20 (previously presented): A method of construction of a screwed steel pile, in which an inside-drilling method is also used, comprising the steps of: drilling, rotating and penetrating the screwed steel pile on a soft stratum of a ground and discharging drilled soil and sand to a periphery of the pile so that the drilled soil and sand cannot enter the pile; and conducting inside-drilling on a hard intermediate stratum or a bearing stratum so that the drilled soil and sand can enter the pile.

21 (previously presented): A method of construction of a screwed steel pile according to claim 20, wherein drilled soil and sand are made to enter the screwed pile by the inside-drilling method when the screwed pile is penetrated into a bearing stratum, and solidification material such as cement mortar or cement milk is jetted out from an end of the auger so that the jetted solidification material is solidified and integrated with the forward end portion of the screwed pile, and the screwed pile is supported by and fixed to the bearing stratum of the ground.

22 (previously presented): A method of construction of a screwed steel pile comprising the steps of: inserting an auger used for inside-drilling having a spiral wing of an appropriate length into the screwed steel pile, the end of which is open, having a drilling wing outside of the pile end of the screwed steel pile body, from

the lower side, the rotation of the auger being controlled separately from the rotation of the pile; drilling, rotating and penetrating the pile into a soft stratum of the ground so as to drill soil and sand by the drilling wing and forcibly discharge the drilled soil and sand to the periphery of the pile body, the rotation of the auger being stopped during penetrating the pile so that soil and sand cannot enter the pile; and drilling and rotating the auger on a hard stratum of the ground such as an intermediate stratum and a bearing stratum of the ground so that the drilled soil and sand can enter the pile.

Claims 23-27: (canceled).

28 (previously presented): A method of construction management for managing the construction of a screwed steel pile having one or a plurality of wings on the lower end portion of the pile, comprising the steps of: finding penetrative resistance Rp by the following equation in the process of construction; and controlling to continue and/or complete penetration of the screwed displacing pile according to the penetrative resistance while the penetrative resistance is being found:

$$Rp = [2\pi Tb + Lb\{(1 - c)S + cP + \alpha\pi Dw'\} - QwhnDw' - QwvS]/\{(1 - c)S + cP + \alpha\pi(Dp' + Dw')\}$$

α: coefficient of friction between ground and a steel plate,

Tb: torque acting on the pile end,

Lb: upper load acting on the pile end,

P: wing pitch,

S: quantity of penetration per one revolution,

Dp': diameter of an action circle of a bottom plate or a bottom plate portion,

Dw': diameter of an action circle of the wing,

Qwh: horizontal resistance of ground received by a blade end,

Qwv: vertical resistance of ground received by the blade end,

c: coefficient of consumed energy by ground caused by forced deformation of a wing directed upward,

Rp: resistance of penetration of ground received by the bottom plate or the bottom plate portion.

29 (previously presented): A method of construction management for managing the construction of a screwed steel pile according to claim 28, wherein bearing capacity Qu of the pile end is estimated by the following equation:

$$Qu = (Rp/d) \times \{1 + e(Aw/Ap)\}$$

where Aw is a projected area of the wing, Ap is a projected area of the bottom plate or the bottom plate portion, d is a coefficient of correction determined by a quantity of penetration at the time when the drilling of the pile is stopped, e ($0 < e \leq 1$) is an effective working ratio of the wing, and Qu is bearing capacity of the pile end.

30 (previously presented): A method of construction management for managing the construction of a screwed steel pile according to claim 28, wherein a pulling capacity Qup of the pile end with respect to pulling is estimated by the following expression:

$$Qup \geq Rp - Lb$$

where Qup is pulling capacity of the pile end with respect to pulling.

31 (previously presented): A method of construction of a screwed steel pile comprising the steps of: using a screwed steel pile, the end portion of which is open, having a wing for drilling a ground, arranged outside in a lower portion of the pile, also using an auger having a spiral wing for drilling of an appropriate length, mounted on an auger shaft inserted into the pile, also using a pipe pile drive section for rotating the pile and also using an auger drive section for rotating the auger in the normal and the reverse direction; drilling, rotating and penetrating the pile into a soft stratum of the ground so as to drill soil and sand by the wing and forcibly discharge the drilled soil and sand to the periphery of the pile body, the rotation of the auger being stopped during penetrating the pile so that soil and sand cannot enter the pile; drilling and rotating the auger on a hard stratum of the ground such as an intermediate stratum and a bearing stratum of the ground so that the drilled soil and sand can enter the pile;

and drawing out the auger from the pile after the completion of penetration of the pipe pile.

32 (previously presented): A method of construction management for managing the construction of a screwed steel pile having one or a plurality of wings on the lower end portion of the pile, comprising the steps of: finding penetrative resistance in the process of construction; and controlling to continue and/or complete penetration of the screwed steel pile according to the penetrative resistance while the penetrative resistance is being found;

wherein penetrative resistance Rp is found by the following equation:

$$Rp = \{(\cos\theta - \alpha\sin\theta)\ (Ht - Qwh) + (\sin\theta + \alpha\cos\theta)Lb\} / \{(1 + \gamma)\ (\sin\theta + \alpha\cos\theta) + \alpha(Dp'/Dw')\ (\cos\theta - \alpha\sin\theta)\}$$

θ: angle of a wing with respect to a face perpendicular to a pile axis,

α: coefficient of friction between ground and a steel plate,

Ht: value obtained when torque acting on the pile end is converted into a horizontal force on an action circle,

Lb: upper load acting on the pile end,

Dp': diameter of an action circle of a bottom plate,

Dw': diameter of an action circle of the wing,

Qwh: horizontal resistance of ground received by a blade end,

γ: coefficient of resistance of a perpendicular blade end,

Rp: resistance of penetration of ground received by a bottom plate portion.

33 (previously presented): A method of construction management for managing the construction of a screwed steel pile according to claim 32, wherein bearing capacity Qu of the pile end is estimated by the following equation:

$$Qu = (Rp/d) \times \{1 + e(Aw/Ap)\}$$

where Aw is a projected area of the wing, Ap is a projected area of the bottom plate portion, e ($0 < e \leq 1$) is an effective working ratio of a wing portion, d is a coefficient of correction determined by a quantity of penetration at the time when drilling of the pile is stopped, and Qu is bearing capacity of the pile end.

34 (previously presented): A method of construction management for managing the construction of a screwed steel pile according to claim 32, wherein a pulling capacity Qup of the pile end with respect to pulling is estimated by the following expression:

$$Qup \geq Rp - Lb$$

where Qup is pulling capacity of the pile end with respect to pulling.